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Dr K. S. Francis Chang (1906–1978) and his role as a Chinese entomologist

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Abstract: A short biography of Kwang-So Francis Chang, a Chinese entomologist, anatomist and educator, is presented. His contributions to entomology included introducing 26 species and subspecies and three genera of Orthoptera from China. Each of these names is listed with the original bibliographic reference, the type locality and current status. A table lists the geographic names used by K. S. F. Chang with the corresponding modern names.

Keywords: Bibliography, biography, China, Orthoptera, taxonomy

张光朔博士行略（1906–1978）及其昆虫学功绩

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摘要：兹述昆虫学家、解剖学家兼教育家张光朔（Kwang-So Francis Chang）之简要生平。张氏于昆虫学之贡献，尤在于中国所产直翅目之研究，所立新属三、种及亚种凡二十有六，今皆条列之，附其原始文献、模式产地，并述其今世分类之所归。又为其文中所见旧地名，各附今名，以资参考。

关键词：书目学，人物传记，中国，直翅目、分类学

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Introduction

Several years ago, during a discussion with Mr. Zi-Hao Shen on the history of Orthoptera research in China, the name K. S. F. Chang emerged quite a few times. Chang was evidently an entomologist who published a small number of papers on the taxonomy of Chinese Orthoptera. At that time, however, neither his personal background nor the details of his scholarly contributions were clearly known to us. Chinese sources contain only fragmentary references to him (see Wang & Chou 1995; Chu 2013), yet these brief notes sparked the author's interest and prompted the gradual, sporadic collection of information over the subsequent years. This paper compiles the results and aims to present a concise biography and bibliography of Chang, together with a list of the taxa he described, in the hope of encouraging renewed attention to his work.

Methods

In reconstructing Chang's life and career, this study relied primarily on the curriculum vitae included in his doctoral dissertation (Chang 1937a) and on the oral history account recorded by his wife in her later years (Ip 1990). Additional searches were conducted using Google Books (books.google.com) and Archives New Zealand (www.archives.govt.nz) to piece together a more complete account of his life.

All names have been checked against the original literature. TL and TS are the abbreviations of "type locality" and "type species", TL written as Chang wrote it. Table 1 provides transliterations of the locality names into Chinese characters and Pinyin. Current allocations for each taxon are provided according to Orthoptera Species File (orthoptera.speciesfile.org).

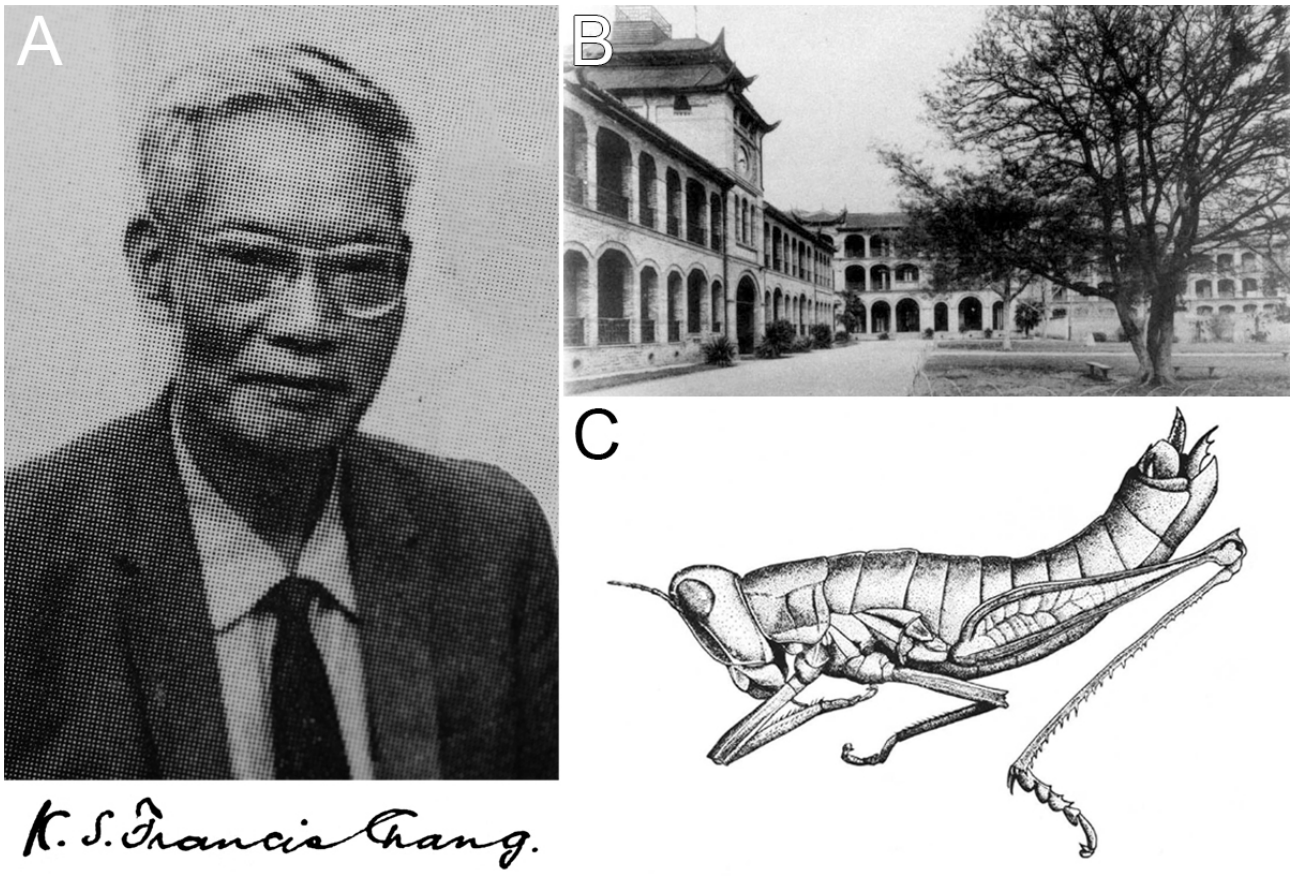

FIGURE 1. A Late-life portrait and signature of A. K. S. Francis Chang, modified from the original photo in Ip (1990) **B** Campus view of St. John's University, Shanghai **C** Original drawing of *Pielomastax octavii* by Chang (1937b).

Biography

Kwang-So Francis Chang (張光朔) was born on September 4, 1906 in Gutian (古田), Fujian Province, into a Christian family. His father served as a missionary at the local church. After receiving his secondary education at Foochow Trinity College (福州三一学校) in Fuzhou, he entered the Fukien Christian University (私立福建协和大学) in 1926 and transferred to St. John's University (圣约翰大学) in Shanghai the following year. He graduated in 1930 with a Bachelor of Biology degree and remained as a lecturer in the Department of Biology (Chang 1937a; Xu 2009). Encouraged by faculty members Yuan-Ting Chu (朱元鼎, 1896–1986) and Willard Merritt Porterfield (1893–1966), Chang began studying the morphology and taxonomy of Orthoptera (Chang 1935). As an adjunct research associate at the Musée Heude, Shanghai, he obtained valuable research resources in entomology. In 1933 (recorded as 1932 in Chu 2013), he undertook a visit to the Government Research Institute of Agriculture [中央研究所農業部] in Taipei, where he was received with notable hospitality by Shiraki Tokuichi (素木得一, 1882–1970) and Ryoichi Takahashi (高橋良一, 1898–1963) (Chang 1935; Wang & Chou 1995; Chu 2013).

In 1935 Chang obtained a Master of Science degree from the same university (Chang 1937a; Xu 2009). Subsequently, he pursued postgraduate study in the United States under the supervision of James George Needham (1868–1957) and, in 1937, was awarded the Ph.D. at Cornell University with a thesis entitled "A Revision of Chinese Acrididae, Part 1: Subfamilies Eumastacinae and Acridinae" (Chang 1937a). By the time he had chance to access the collection of the United States National Museum (now National Museum of Natural History, Smithsonian Institution), especially those "recently" made by David C. Graham (葛维汉, 1884–1961) during the 1920s–1930s in southwestern China. After obtaining his doctorate, Chang returned to St. John's University and became a professor in the Department of Biology (Chang 1939).

In the 1940s, Chang transferred to the Medical Faculty and began teaching anatomy (Lamberton 1955; Ip 1990). Between 1946 and 1947, he and his wife, Kathleen Anuei Zhen-Wah Pih-Chang (畢振華, 1903–1991), a Chinese lady who had been raised by New Zealand missionaries, spent a brief period in New Zealand, where he taught at the Otago Medical School in Dunedin. In 1950, he left St John's University in his capacity as Head Professor of the Department of Anatomy and travelled via Hong Kong to join the newly established University of Malaya in Singapore, and in 1955 he accepted the invitation from the University of Hong Kong as Professor of Anatomy, a position he held until his retirement (Ip 1990). In 1969, Chang and his wife settled in Tauranga, New Zealand, where he passed away from heart disease in April 1978 (Ip 1990).

Entomological bibliography of K. S. Francis Chang

Chang K S F 1931: The external Anatomy of *Oedaleus marmoratus* Thunb. Part 1. External Anatomy of the head and mouthparts. *The Journal of the St. John's Science Society* [約翰科學], 1 (1): 15–38.

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Chang K S F 1937a: *A revision of Chinese Acrididae Part 1: Sub-families Eumastacinae and Acridinae*. Ph. D. Thesis, Cornell University, Ithaca, 850 pp.

Chang K S F 1937b: Notes on the Eumasticinae (Orthoptera, Acrididae) from China, with description of one new genus and two new species. *Notes d'Entomologie Chinoise*, 4 (3): 35–46, 2 pls.

Chang K S F 1937c: Some new Acrididae from Szecehwan and Szecehewan-Tibetan border (Orthoptera: Acrididae). *Notes d'Entomologie Chinoise*, 4 (8): 177–196, 2 pls.

Chang K S F 1939: Some new species of Chinese Acrididae (Orthoptera; Acrididae). *Notes d'Entomologie Chinoise*, 6 (1): 1–58, 2 pls.

Chang K S F 1940: The group Podismae from China (Acrididae, Orthoptera). *Notes d'Entomologie Chinoise*, 7 (2): 31–97, 3 pls.

New Taxa Introduced

asiaticus, *Phymateus*: Chang, 1939: 33, pl. 1, figs 1, 2. TL: "Szechwan: Suifu" = *Phymateus viridipes* Stål, 1873

chapini, *Chorthippus*: Chang, 1939: 5, pl. 2, figs 2, 5, 10, pl. 3, figs 3, 6. TL: "Szechwan: between Li-to and Luh Ding Chao, 4-9000 feet"

grahami, *Chorthippus*: Chang, 1937c: 178, pl. 4, figs 3–5. TL: "Szechwan: Nang Yang Ba, West of Chentu Pass, 13,000–14,500 feet"

gurneyi, *Ptygonotus*: Chang, 1937c: 184, pl. 4, figs 1–2. TL: "Szechwan: Wa Hu Pass, 16,400 feet"

***Indopodisma* (*Sinopodisma*)** Chang, 1940: 68. TS: *Indopodisma* (*Sinopodisma*) *pieli* Chang, 1940. = *Sinopodisma* Chang, 1940

kelloggii, *Indopodisma* (*Sinopodisma*): Chang, 1940: 80, pl. 1, fig. 2, pl. 3, figs 2, $2A_2$, $2B_2$, 6, 7, 20. TL: "Kushan, near Foochow, Fukien Province" = *Sinopodisma kelloggii* (Chang, 1940)

kulinga, *Caudellacris viridifemorata*: Chang, 1940: 63, pl. 2, fig. 10. TL: "Kuling, 3,000 ft" = *Fruhstorferiola kulinga* (Chang, 1940)

licenti, *Aeropus*: Chang, 1939: 16. TL: "Shansi: Hahaye" = *Gomphocerus licenti* (Chang, 1939)

manjius, *Oedaleus*: Chang, 1939: 21. TL: "Chekiang: Wenchow"

methiola, *Caryanda*: Chang, 1939: 43, pl. 1, figs 5, 6, 9, pl. 3, fig. 4. TL: "Szechwan: Yachow…2–4,000 feet"

ningpoensis, *Oxya grandis*: Chang, 1934: 190, figs 1–3. TL: "Ningpo (鄞縣)" = *Oxya ningpoensis* Chang, 1934

octavii, *Pielomastax*: Chang, 1937b: 45, pl. 1, pl. 2, figs 1–2, 4–5. TL: "Kuling mountains (in Kiangsi Province)"

omeiensis, *Caryanda*: Chang, 1939: 47, pl. 1, fig. 8. TL: "Szechwan: Shin Kai Si, Mt. Omei"

peipingensis, *Chorthippus hammarstroemi*: Chang, 1939: 7. TL: "Western Hills, Peiping" = *Chorthippus hammarstroemi solaris* Woznessenskij, 1998

peipingensis, *Dasyhippus*: Chang, 1939: 12, pl. 2, figs 3, 6, 8, 9, pl. 3, fig. 5. TL: "Peiping, Western Hills"

pieli, *Caryanda*: Chang, 1939: 48, pl. 2, figs 1, 4, pl. 3, figs 1, 7. TL: "Chekiang: Tienmu-shan"

pieli, *Indopodisma* (*Sinopodisma*): Chang, 1940: 83, pl. 1, figs 1, 7, pl. 2, figs 2, 5, 7, 8, 12, pl. 3, figs 1, $1A_1$, $1B_1$, 5, 18. TL: "Kuling, Kiangsi Province" = *Sinopodisma pieli* (Chang, 1940)

Pielomastax Chang, 1937b: 41. TS: *Pielomastax octavii* Chang, 1937.

shantungensis, *Chorthippus*: Chang, 1939: 2 TL: "Oshan, Kianglukou district, Shantung"

sinense, *Miramella*: Chang, 1940: 54, test-fig. 5?, pl. 1, figs 6, 8, pl. 2, figs 5-7. TL: "Manchuria, T'oumenling" = *Anapodisma miramae* Dovnar-Zapolskij, 1932

sinensis, *Caryanda*: Chang, 1939: 45, pl. 1. Figs 3, 4, 7, pl. 3, fig. 2. TL: "Szechwan: Suifu" = *Lemba sinensis* (Chang, 1939)

sinensis, *Tonkinacris*: Chang, 1937c: 191: pl. 3, figs 1–2. TL: "Szechwan: Shin Kai Si, Mount Omei, 2–4,000 feet"

soochowensis, *Pielomastax*: Chang, 1937b: 45, pl. 2, figs 3, 6. TL: "Tienpinshan, Soochow"

szechwanensis, *Conophymacris*: Chang, 1937c: 188, pl. 4, fig. 6. TL: "Szechwan: Mount Omei, 11,000 feet"

tsaii, *Indopodisma* (*Sinopodisma*): Chang, 1940: 75, pl. 1, fig. 3, pl. 3, figs 3, $3A_3$, $3B_3$, 8, 19. TL: "Chekiang privonce, Tien-mu Shan" = *Sinopodisma tsaii* (Chang, 1940)

uvarovi, *Oreoptygonotus*: Chang, 1937c: 181, pl. 3, figs 3–7. TL: "Szechwan-Tibet Border: Ja Ze Pass. 16–17,150 feet" = *Anaptygus uvarovi* (Chang, 1937)

weichowensis, *Euchorthippus*: Chang, 1937c: 180, pl. 3, figs 8–10. TL: "Szechwan: Weichow, 56 miles N. W. Chengtu, 5,000 feet"

yunkweiensis, *Euprepocnemis*: Chang, 1937c: 193, pl. 4, fig. 9. TL: "Kweichow: Shih Men Kan" = *Shirakiacris yunkweiensis* (Chang, 1937)

Yunnanacris Chang, 1940: 85. TS: *Indopodisma yunnaneus* Ramme, 1939.

Discussion

According to the preceding part, in less than ten years of entomological publishing experience, Chang introduced a total of 29 Orthoptera taxa, including three genera, 23 species and three subspecies, most of them are still available. The type materials of taxa elected by Chang were mostly housed in Musée Heude, Shanghai (currently transferred to Shanghai Entomological Museum, Chinese Academy of Sciences), Musée Hoang Ho Pai Ho, Tientsin (currently transferred to Tianjin Natural History Museum), and National Museum of Natural History, Smithsonian Institution, Washington D. C. In addition, his detailed morphological study of *Gastrimargus marmoratus* (Thunberg, 1815) provided an important foundational contribution and comparative resources to physiological research in acridology (Uvarov 1948; Liu & Leo 1960). The reason for his transition from taxonomy to medical anatomy remains unknown, although such career shifts were not uncommon at that time. The renowned Chinese entomologist Chenfu F. Wu (胡经甫, 1896–1972) experienced a similar trajectory (Li 2012).

TABLE 1. Locality names as used by K. S. F. Chang, in Chinese characters, and as currently written in English.

Original name	Chinese name	Current name in Pinyin
Beijing 北京		
Peiping	北平 (今北京)	Beijing
Western Hills	西山	Xishan
Fujian 福建		
Fukien	福建	Fujian
Foochow	福州	Fuzhou
Kushan	鼓山	Gushan
Guizhou 贵州		
Kweichow	贵州	Guizhou
Shih Men Kan	石门坎	Shimenkan
Jiangsu 江苏		
Tienpinshan	天平山	Tianpinshan
Soochow	苏州	Suzhou
Jiangxi 江西		
Kiangsi	江西	Jiangxi
Kuling	牯岭	Guling
Southeast China 中国东北地区		
Manchuria	"满洲利亚"，中国东北至俄罗斯部分地区，原文意指中国东北	Southeast China
T'oumenling	土门岭（在吉林西北）	Tumenling (in northwest of Jilin)
Shandong 山东		

Shantung	山东	Shandong
Kianglukou / Kan Lu Kou	未确定	unrecognized
Oshan	未确定,可能是峨山	possibly Eshan
Shanxi 山西		
Shansi	山西	Shanxi
Hahaye	赫赫岩	Heheyan
Sichuan 四川		
Szechwan	四川	Sichuan
Ja Ze Pass	加折拉山口（今盘盘山垭口）	Panpanshan Pass
Nang Yang Ba	可能是安良坝	possibly Anliang Ba
Chentu Pass	可能是折多山口	possibly Zeduo Pass
Weichow	威州 (今汶川)	Wenchuan
Wa Hu Pass	瓦灰山	Mt. Wahui
Chengtu	成都	Chengdu
Yachow	雅州 (今雅安)	Ya'an
Suifu	叙府(即叙州府，今宜宾)	Yibin
Li-to	可能是理塘	possibly Litang
Luh Ding Chao	泸定桥	Ludingqiao
Mount Omei	峨眉山	Mt. Emei
Shin Kai Si	新开寺	Xinkaisi
Zhejiang 浙江		
Chekiang	浙江	Zhejiang
Ningpo	宁波 (原文中文写作鄞县)	Ningbo
Tienmu-shan / Tien-mu Shan	天目山	Mt. Tianmushan
Wenchow	温州	Wenzhou

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